ABSTRACT

A method of delivering radiation treatment using multi-leaf collimation includes the step of providing a radiation fluence map which includes an intensity profile. The fluence map is converted into a preliminary leaf sequence, wherein the preliminary leaf sequence minimizes machine on-time and is generated without leaf movement constraints. The leaf movement constraint is imposed on the preliminary leaf sequence. At least one constraint elimination algorithm is then applied, the algorithm adjusting the preliminary leaf sequence to minimize violations of the constraint while providing the desired fluence map and minimized radiation on-time. The method can be applied to SMLC and DLMC systems, and can include adjustment for the tongue-and-groove effect.